

**Claims**

1. Measuring-device module for a measuring device,  
5 wherein the measuring-device module (35, 36)  
comprises a plug-in contact element (55, 56) for  
the electrical connection of a plug-and-socket  
panel (11) of the measuring device (1) provided for  
data transfer,  
10 **characterised in that**  
the measuring-device module (35, 36) comprises a  
main printed-circuit board (70) disposed in a first  
printed-circuit-board space (80), the first  
printed-circuit-board space (80) being formed by at  
15 least one first frame element (67), which encloses  
the printed-circuit board (70) around its external  
periphery (71) in an essentially enclosed manner.
2. Measuring-device module according to claim 1,  
20 **characterised in that**  
a second frame element (68) can be connected to the  
first frame element (67) to form a base frame.
3. Measuring-device module according to claim 2,  
25 **characterised in that**  
the printed-circuit board (70) is mounted between  
the two frame elements (67, 68) of the base frame.
4. Measuring-device module according to claims 1 to 3,  
30 **characterised in that**  
the plug-in contact element (55, 56) is designed as  
a part of a the main printed-circuit board (70),  
which projects beyond the external periphery of the  
first frame element (67) or of the base frame

through a recess in the first or the second frame element (67, 68).

5. Measuring-device module according to any one of  
5 claims 1 to 4,  
**characterised in that**  
the first frame element (67) and/or the base frame  
is open at least in the direction of one surface of  
the main printed-circuit board (70).  
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6. Measuring-device module according to claim 5,  
**characterised in that**  
the first frame element (67) and/or the base frame  
can each be covered at its open sides by a cover  
15 plate (84, 85) to form an enclosed base element  
(65, 66).
7. Measuring-device module according to claim 6,  
**characterised in that**  
20 cooling-air apertures are formed in the cover  
plates (84, 85).
8. Measuring-device module according to claim 6 or 7,  
**characterised in that**  
25 the cover plate and/or the cover plates (84, 85)  
can be attached by at least one clip element (102)  
to the first frame element (67) and/or to the base  
frame, wherein the at least one a clip element  
(102) can be pushed into place from the essentially  
30 enclosed external periphery of the first frame  
element (67) and/or the base frame.
9. Measuring-device module according to claim 8,  
**characterised in that**

several clip elements (102) distributed around the external periphery of the first frame element (67) and/or the base frame are provided.

5 10. Measuring-device module according to claim 8 or 9,  
**characterised in that**  
the clip elements (102) provide locking projections  
(130) for fixing to the first frame element (67)  
and/or the base element, which engage with  
10 corresponding indentations (87.1 to 87.5) of the  
cover plates (84, 85).

11. Measuring-device module according to any one of  
claims 8 to 10,  
15 **characterised in that**  
at least one respective guide element (106) for  
guiding the measuring-device module laterally  
towards its plug-in direction is formed on a  
carrier surface (105) of the clip elements (102)  
20 partially enclosing the external periphery of the  
first frame element (67) and/or the base frame,  
which guide element (106) co-operates with a guide  
component (15) of the measuring device (1) to form  
a guide device.

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12. Measuring-device module for a measuring device,  
wherein the measuring-device module (35, 36)  
comprises a plug-in contact element (55, 56) for  
the electrical connection of a plug-and-socket  
30 panel (11) of the measuring device (1) provided for  
data transfer,

**characterised in that**  
the measuring-device module (35, 36) comprises a  
base element (66) with a first printed-circuit-

board space (80) for receiving a printed-circuit board (70) and with a second printed-circuit-board space (90).

5 13. Measuring-device module according to claim 12,  
**characterised in that**  
the base element (66) can be connected to a further  
base element (65), wherein the second printed-  
circuit-board space (90) of the base element (66)  
10 together with the second printed-circuit-board  
space of the further base element (65) forms a  
common, additional printed-circuit-board space  
(90').

15 14. Measuring-device module according to claim 13,  
**characterised in that**  
the main printed-circuit board (70) of the base  
element (66) is connected to the further main  
printed-circuit board of the further base element  
20 (65) via an electrical connection arranged in the  
additional printed-circuit-board space (90').

15. Measuring-device module according to any one of  
claims 12 to 14,  
25 **characterised in that**  
the second printed-circuit-board space (90) can be  
connected to a frame body (127) to form an  
additional printed-circuit-board space (90').

30 16. Measuring-device module according to any one of  
claims 12 to 15,  
**characterised in that**  
at least one spacing element (120, 126, 126') for  
adapting the measuring-device module (35, 36) to a

grid dimension of the measuring device (1) is arranged between the base element (66) and the further base element (65) or the base element 66 and the frame body (127).

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17. Measuring-device module according to any one of claims 12 to 16,

**characterised in that**

at least one electrical connection element (88, 89) is provided, which is connected to the main printed-circuit board (70) or to an additional printed-circuit board in the second printed-circuit-board space (90) or in the additional printed-circuit-board space (90').

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18. Measuring-device module according to any one of claims 12 to 17,

**characterised in that**

a connection carrier (98) with a further electrical connection (100) is provided at the end of a base element (66) disposed opposite to the second printed-circuit-board space (90).

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19. Measuring device with plug-in measuring-device modules (35, 36), which are connected via a plug-and-socket panel (11) to an information-output device (9) at a front side of the measuring device (1), wherein the measuring-device modules (35, 36) can be plugged in from a rear side facing away from the information-output device,

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**characterised in that**

a recess (5) is provided in the front side of the measuring device (1), through which an electrical connection (6), at least for a part of the plugged-

in measuring-device modules (35, 36), is accessible.

20. Measuring device according to claim 19,  
5 **characterised in that**  
at least a part of the measuring-device module (35, 36) provides electrical contacts (57, 57', 57'', 58, 130, 130''), which are accessible from the rear side of the measuring device (1).
- 10 21. Measuring device according to claim 19 or 20,  
**characterised in that**  
for each measuring-device module (35, 36) to be accommodated, at least one guide component (15) for  
15 the guidance of the measuring-device modules is provided, wherein the at least one guide component (15) provides a resilient, deformable guide element for the resilient mounting of the measuring-device module (35, 36).
- 20 22. Measuring device according to claim 21,  
**characterised in that**  
the guide components (15) for adjacent measuring-device modules (35, 36) are spaced at a distance  
25 such that a cooling-air gap is formed between adjacent measuring-device modules (35, 36).
23. Measuring device according to claim 21 or 22,  
**characterised in that**  
30 the resilient, deformable guide elements are formed by resilient tongues (14) arranged in a row.
24. Measuring device according to any one of claims 19 to 23,

**characterised in that**

the plug-and-socket panel (11) is mounted in such a manner that it can be displaced within a receiving device (10) in at least one plane perpendicular to the direction of insertion of the measuring-device modules (35, 36).

25. Measuring device according to any one of claims 19 to 24,

**characterised in that,**

in order to retain the measuring-device modules (35, 36), a rear cover (41) is provided for the measuring-device housing, which cover (41) has at least one recess (42), through which connections of the measuring-device modules (35, 36) orientated towards the rear of the housing are accessible.

26. Measuring device according to claim 25,

**characterised in that**

insertion elements (45) can be inserted into the cover of the measuring device housing (41) in order to cover the cooling-air gaps between the measuring-device modules (35, 36) and/or blank elements (37, 38).

27. Measuring device according to any one of claims 19 to 26,

**characterised in that**

each measuring-device module (35, 36) is formed as a functional unit, and that data can be transferred via a bus system either between various measuring-device modules (35, 36) or to the information-output device (9).

28. Measuring device according to claim 27,  
**characterised in that**  
the information-output device (9) is designed as an  
input/output device.

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29. Measuring device according to claim 27 or 28,  
**characterised in that**  
at least one measuring-device module (35) is  
designed as a computer module for controlling data  
transfer via the bus system.

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30. Measuring device according to any one of claims 27  
to 29,

**characterised in that**

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a plug-in power pack is provided, which is also  
connected to the plug-and-socket panel (11) via an  
electrical plug-connection (13), wherein the power  
supply to the measuring-device modules (35, 36) is  
provided via the bus system.

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